

ABSTRACTSATELLITE RADIODETERMINATION

A satellite radiodetermination system comprises global navigation service (GNSS) satellites 2 such as
5 GPS satellites, which generate GNSS ranging signals R_n ,
geostationary satellites 6 which retransmit ranging
signals R_g generated at a navigation land earth station
(NLES) 8, including augmentation data A, and medium
earth orbit (MEO) satellites 10 which generate ranging
10 signals R_m including regional augmentation data RA
transmitted from a satellite access node (SAN) 14.
The regional augmentation data RA is supplied by
regional augmentation systems 21a, 21b.

A navigation receiver 11 receives the ranging
15 signals R_g , R_m , R_n and calculates ionospheric delay
values for those ranging signals which are provided on
dual frequencies. Using these ionospheric delay
values, and optionally the regional augmentation data
RA and the augmentation data A, the navigation
20 receiver estimates ionospheric delay values for those
ranging signals which are provided on single
frequencies. The navigation receiver uses the ranging
signals, corrected for ionospheric delay and errors
indicated by the augmentation data A and regional
25 augmentation data RA, to calculate position and time
accurately.

[FIG. 1]